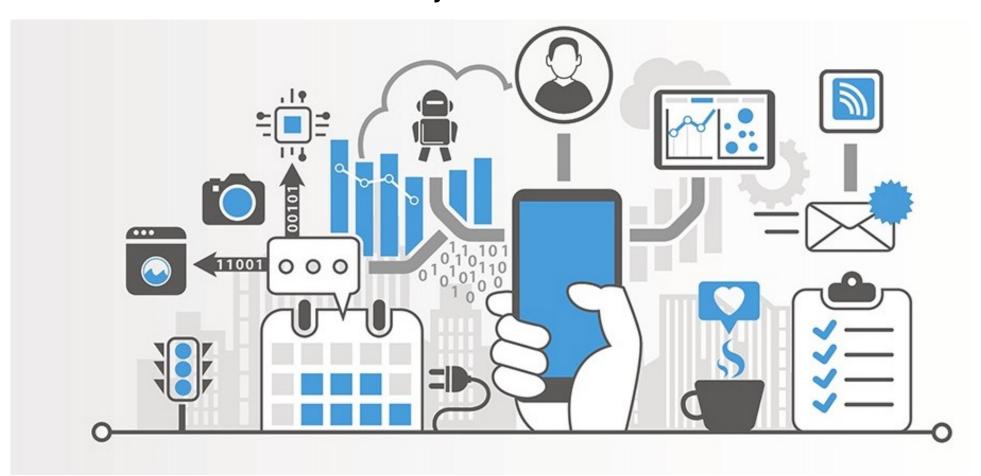


# Programming for IoT Applications

Edoardo Patti Project Guidelines





#### **Team**

- team members: 4
- team building: autonomous
- Each team needs to send an email to both <u>edoardo.patti@polito.it</u> and <u>rafael.fontana@polito.it</u> specifying team members info (name, surname, student-ID and email address)



To complete a project each team has to:

- submit a proposal that describes the general idea for an IoT platform and the role of its components. It must be compliant with
  - The topics of the course
  - The provided "proposal template.docx".
- submit the source code
- make a "promo" video describing the proposed idea available on youtube (max 4 minutes)
- make a "demo" video (demonstrating that each component of the platform works) available on youtube (max 10 minutes)
- orally discuss the developed platform presenting it with PowerPoint slides. The discussion date is flexible (no deadline constraints) max
  20 min. Each Member must present his/her own part.
- In any case, all provided HW material must be strictly returned by beginning of September 2024 (strict deadline).



- Each team has to submit a proposal by <u>December 7<sup>th</sup>, 2023</u>
  - Send by email the provided template filled in all its parts to both edoardo.patti@polito.it and rafael.fontana@polito.it.
- A proposal can either be:
  - ACCEPTED as it is.
  - Asked to perform MINOR or MAJOR REVIEW. The team has to modify the proposal following the given indications.
  - **REJECTED**. A new proposal must be resubmitted following the given indications.
- Only after the proposal is ACCEPTED, the team can start developing the platform
- Submit videos and source code to both <a href="mailto:edoardo.patti@polito.it">edoardo.patti@polito.it</a> and <a href="mailto:rafael.fontana@polito.it">rafael.fontana@polito.it</a> at least 5 days before the discussion.
- Source code must be sent via git, dropbox, or other sharing platforms.
  DO NOT ATTACH ZIP FILES TO YOUR EMAILS
- Example of videos are available at <a href="https://goo.gl/Pdtp54">https://goo.gl/Pdtp54</a>



- The max final score for the project is 18/30.
  - Each phase of the project is given a score.
- A bonus can be given (max 2 points) if the project includes additional tools and/or third-party platforms not presented during the course.
- The project will be immediately rejected if:
  - Python is not the predominant programming language (about 80% of the source code must be in Python, 20% other programming languages)
  - The IoT platform does not follow the microservices design pattern (DO NOT DEVELOP MONOLITIC SOFTWARE)
  - The IoT platform is not developed following the Object Oriented Programming



#### Good practice to have a good score:

- Define a proper data-format for data exchange
- Make the IoT platform scalable to manage various IoT devices, users and contexts (e.g. adding/removing new devices, users and context at run-time without modifying the source-code). Guarantee correlation among all the actors in the systems
- Use configuration file (e.g. a JSON file) to configure your IoT platform
- Guarantee information exchange among the actors in the system over the internet only (i.e. REST and/or MQTT)